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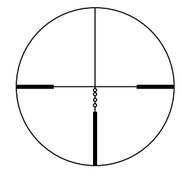
Guide to using
the

Nikon BDC 250 Reticle

Thank you for selecting the Nikon OMEGA for your muzzleloading rifle. The Nikon OMEGA has been developed specifically for muzzleloaders-the size, optics and reticle are optimized for your sport. The OMEGA features Nikon's new BDC 250 reticle that can be custom tailored for the trajectory of your load. We are very proud of the ruggedness and superb performance built into every Nikon riflescope and the OMEGA carries on this tradition.

Mounting the Omega on your Muzzleloader*
Ensure the following is carried out before shooting your Omega equipped muzzleloader:
- All base and ring screws should be properly tightened.



Sighting-in the Omega
There are two ways to sight in a rifle-the simple way or the frustrating way. Let's go directly to the simplest method. First, make a LARGE target. Large would be at least two feet square, preferably bigger. Cut up an over-sized cardboard box or get a sheet of construction paper from a craft shop. We want to ensure we catch the first shot fired.

Make an aiming mark in the center of the target with a felt pen. A simple one-half inch dot will suffice. Place the large target at 20 or 25 yards. Then fire a shot at this dot from a stable shooting rest. Unless your scope mounting system is very incompatible with your rifle you will hit the target somewhere.

Now for the neat trick! Replace the rifle in the shooting rest and place the crosshair intersection on the aiming dot. Without moving the rifle, move the crosshairs to the bullet hole. The rifle must remain absolutely stationary as the adjustment is made. Best to have a friend carefully turn the turrets while you look through the scope and provide directions. Fire one shot to confirm that your scope is now zeroed on the close range dot. Make minor corrections if required. The object is to get the point of aim identical to the point of impact. Always remember, when making windage and elevation adjustments, you are moving the impact of the bullet toward your original intended point of aim.

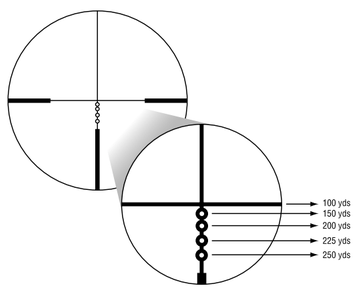
Now move your large target paper to one hundred yards. Enlarge the aiming dot to two inches with your felt pen. Place small pieces of masking tape over the short-range bullet holes or simply mark them with the felt pen. Now fire a shot and again the bullet should hit somewhere on the large target paper. You can repeat the previous technique of moving the crosshairs to the bullet or simply measure how much correction will be required to bring the bullet to the aiming dot. If you are six inches low and four inches right, move the elevation turret 24 clicks up and the windage turret 16 clicks left. Once again - the objective is to get the point of aim identical to the point of impact.

Using the Omega BDC 250 Reticle
You have no doubt noticed the series of round circles in the lower vertical section of the BDC 250 reticle. These circles are positioned to enable accurate placement of shots out to 250 yards. Nikon's research indicates that current in-line muzzleloaders and loads are capable of lethal accuracy to that distance. The BDC 250 reticle will enable hunters to shoot with confidence-from point blank to 250 yards! By Sighting in the center crosswire at 100 yards, most muzzlelaoding forearms will match the trajectory on page 4 using the following:
- 250 grain bullet with 150 grain powder charge (powder or pellets)

If you choose to use a different weight bullet or different powder charge, have no fear, the BDC 250 reticle can and will still work perfectly for you. By using a 2" circle (subtension at 100 yards) instead of a dot or hash mark, you have multiple aiming points (top, middle and bottom of the circle) to customize the reticle to your specific firearm. The circle allows you to see the target without obstructing it and still fits well within the body of big game animals out to 250 yards. Should your firearm perform in a manner that is not consistent with the image below, use the technique mentioned on page 7 in this manual to maximize your firearms performance and customize the reticle to your particular setup.

Nikon has designed this BDC 250 reticle to blend simplicity with accuracy-a difficult challenge considering the huge number of variables involved in placing a bullet drop compensating scope on a rifle. These would include:
- the mounting system and how true it positions the scope to the center-line of the bore
- the make, model and caliber of firearm involved
- the firearm's condition and inherent accuracy
- the ballistics performance of the ammunition-accuracy, velocity, uniformity and bullet characteristics such as ballistics co-efficients.
- a final variable is you-the shooter!

Other variables **include**:
- temperature
- humidity
- altitude
- barrel length
- bullet design
- cleaning and reloading techniques
- bullet seating pressure,etc



Let's face it, right out of the box no reticle can be expected to match every rifle and every trajectory perfectly. That is simply impossible given the above variables. What is possible is to offer a simple reticle design that can be adjusted or tailored to work with almost any rifle and ammo combination if the shooter does his homework. This requires one key element-the shooter must understand how the system works and he must go out and shoot his rifle at a variety of distances. He must determine the distance that he can shoot with confidence. How far out can you place your first shot into a ten-inch paper plate-every time? Let's call that your personal lethal hunting distance. The Nikon BDC 250 reticle will help you extend your personal lethal hunting distance and to shoot with complete confidence within that range.

There are two challenges for accurate placement of shots-bullet drop and wind drift. Wind drift is the most difficult since wind speed and direction are infinite variables. At two hundred yards a ten mile per hour cross-wind can drift a bullet from ten inches to almost thirty, depending on velocity and bullet design. There is only one way to learn to shoot in wind and that is getting out there and shooting on windy days. Keep notes because the information is easily forgotten.

Trajectory is much easier to handle since gravity affects our bullets quite uniformly. The BDC 250 reticle will become your partner as you prepare for the eventuality of long shots.

Nikon has developed a simple technique for tuning the accuracy circles in the BDC 250 to the trajectory of your particular load. The bottom line is that we must shoot under controlled circumstances so that reticle performance can be tailored properly. This requires a safe shooting location, large targets to ensure catching every bullet, good shooting rests and a uniform loading technique. We need to shoot as accurately as possible so the rifle must be supported at the front and rear.

Nikon suggests the use of a laser rangefinder to ensure accurate distance determination for longer shots. Nikon offers a complete line of rangefinders that are optimized for hunting. We must know how far away our target is for correct hold-offs.

The best muzzleloader accuracy results from developing a uniform loading procedure. Swabbing the bore lightly between shots minimizes the accumulation of propellant residue. Swabbing is highly recommended. Use patches lightly saturated in solvent (barely moist to the touch). Always push the ramrod down the bore in short jabs rather than with one long push. If using pellets seat the bullet carefully to just make contact with the propellant. Do not crush the pellets with excessive seating force.

Now for the shooting procedure that will fine tune the BDC 250 reticle to your load.
- zero the scope at one hundred yards so that your point of impact is identical to the point of aim.
- **set up** large cardboard targets at two hundred and fifty yards. The target should be at least three feet tall. Place an aiming mark at the top of the large piece of cardboard.
- shoot three to five shots using your one hundred yard zero. Do not be concerned about bullet drop. The challenge is to have a large enough cardboard to catch each shot and to form a nice group.
- mark the center of your 250 yard group with a large X using your felt marking pen.
- go back to the firing position and align your scope on the aiming point and note where the 250 group is relative to the bottom circle. Do not be concerned if the group is not in the circle.
- vary the power setting on the scope to move the bottom circle to the center of the group. You might prefer to use the center, top or bottom of an accuracy circle, your choice. You now have a 100-yard zero and a 250-yard zero.
- note the power setting that enables the 250 yards/zero and do not move the magnification ring. You might consider a dab of nail-polish to mark the spot so you can return easily.
- move your target to 150, 200 and 225 and repeat the firing procedure, noting exactly where your groups form relative to the circles. Do not move the magnification ring on the scope. Note the relationship between the center of each group and the circles and make simple notes to describe the correlations.
- **If you cannot, or prefer not to shoot out to 250 yards, do the above at 200 yards or whatever range you are comfortable shooting to.**

You now have exact zero information for 100, 150, 200, 225 and 250 yards. We suggest a simple drop-chart for field use. Accuracy circles are very adaptable. We can use three aiming locations, the intersections at the top and bottom with the vertical crosshair or the center of the circle. After tailoring the BDC 250 reticle your long-range hold-offs will be based on confidence rather than guess-work!

Care of your Nikon Omega Scope
"Blow-by" is inherent in many muzzleloader designs-some more-so than others. "Blow-by" is a mixture of gaseous and solid ignition residues that are swept backwards through the nipple or ignition path and directed in several directions out of the action of the muzzleloader. Some blow-by strikes the underside of the scope. If the residues are not removed or prevented from accumulating the finish of the scope tube can become marred.

Fortunately this accumulation is very easy to prevent. Simply apply a short section of electrician's tape to the underside of the scope, immediately above the ignition area of the receiver. There are also several commercial scope-protectors that are held in place by Velcro or snaps that will protect your scope from ignition residue

Rifle scope lenses should be kept as clean as possible during use. Never clean debris and marks from scope lenses by rubbing with a dry cloth or tissue. Always moisten the lens before wiping. Preferably brush loose material from the lens surface, moisten with a lens cleaning fluid and then wipe clean in circular motions. Lens cleaning solutions are available in spray-pump containers or simply apply a few drops to the lens cleaning cloth.

The following NIKON LENS Cleaning accessories are highly recommended for keeping your optics in excellent condition. These can be found at your local Nikon dealer.
- Nikon Lens Pen-Simply brush first, then exhale on the lens to moisten and immediately rotate the soft cleaning pad over the marks. Work the pad in diminishing circles on the lens, ending with a simple twirl in the center.
- Nikon Micro Fiber Cleaning Cloth
- Nikon lens cleaner spray and moist cloths

Wipe the main tube of your scope with a clean dry cloth to remove fingerprints and surface blemishes. Debris such as mud should be removed with a water-moistened cloth with soft rubbing, followed by a light wiping with a dry cloth.